The Rio Grande Rift extends north from El Paso Texas to the headwaters of the Arkansas River at Tennessee Pass. The Arkansas River flows south from Tennessee Pass down the rift for 60 miles, then takes a turn to the east at Salida. But the Arkansas River didn't always take that turn. Several million years ago during Miocene and Pliocene times, the Arkansas River flowed southward through today's Poncha Pass (pictured here) and into the San Luis Valley and today's Rio Grande. About 3 million years ago, uplift and volcanism forced the river into a new route eastward out of the mountains, leaving Poncha Pass a high and dry "wind gap" at the north headwaters of today's Rio Grande.

In 1881, the Denver & Rio Grande Railroad constructed a narrow gauge branch line from a junction with the Marshall Pass main line at Mears Junction. The line crossed over Poncha Pass into the San Luis Valley to the town of Orient and its iron mines. Orient was active from 1880 through 1932 and was the largest producer of iron ore in Colorado. Nearly a decade later in 1890, the line was extended south from Villa Grove to Alamosa, where it connected with the existing narrow gauge lines of the San Juan Extension. The long, straight stretch across the northern San Luis Valley became known as the Valley Line. Once La Veta Pass was realigned around 1899 and standard gauged, the Poncha Pass route became the only way that narrow gauge equipment could move between the southern narrow gauge system (Chili Line and San Juan Extension) and the D&RG narrow gauge mainline over Marshall Pass. In 1900, a second branch was added off the Valley Line from Moffat to Crestone. In 1930, the short section from Alamosa north to Hooper was converted to dual gauge, with the third rail added on the west side of the line. The route from Mears Junction south to Hooper was abandoned in 1951 and the standard gauge Hooper Spur was abandoned in 1959.

In this northward view, the narrow gauge D&RG grade is cut into a gentle slope on the southern approach to Poncha Pass.